IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

CASCADES COMPUTER INNOVATION, LLC,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	No. 11 C 4574
	)	
SAMSUNG ELECTRONICS CO. LTD.,	)	
	)	
Defendant.	)	
--	)	
	)	
CASCADES COMPUTER INNOVATION, LLC,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	No. 11 C 6235
	)	
HTC CORPORATION,	)	
	)	
Defendant.	)	

CORRECTED
MEMORANDUM OPINION AND ORDER

MATTHEW F. KENNELLY, District Judge:

Cascades Computer Innovation, LLC, has sued Samsung Electronics Co. Ltd. (Samsung) and HTC Corporation (HTC) for patent infringement, contending that the defendants manufacture and sell products that infringe U.S. patent number 7,065,750 (the '750 patent). On September 14, 2014, the Court granted summary judgment in part, concluding that the defendants were entitled to summary judgment of noninfringement from January 29, 2014, the date of Cascades' settlement and license agreement with Google, forward. *Cascades Computer Innovation, LLC v. Samsung*

Elecs. Co. & HTC Corp., Nos. 11 C 4574 & 11 C 6235, 2014 WL 4553226, *5 (N.D. Ill.

Sept. 14, 2014). On September 24, 2014, Samsung and HTC jointly moved for

summary judgment of noninfringement for the time preceding January 29, 2014.

Background

Because defendants have moved for summary judgment, the Court construes all

facts in the light most favorable to Cascades, the nonmoving party. *Anderson v. Liberty*

Lobby, Inc., 477 U.S. 242, 255 (1986).

Cascades is the exclusive licensee of the '750 patent, entitled "Method and

Apparatus for Preserving Precise Exceptions in Binary Translated Code." Pl.'s Niro

Decl., Ex. T. As a general overview, the '750 patent describes a method and apparatus

for efficiently executing on one system architecture computer programming code that is

intended for a different architecture. According to the patent specification, "the task of

porting [a] software application to a new platform, based on a different architectural

design, is very complex and time consuming." *Id.* at 1:42–51. Binary translation, a

technique in which "foreign code is processed by host software to produce new host

code corresponding to the foreign code," is one mechanism for executing foreign code

in a host environment. *Id.* at 2:1–10, 4:15–17. The patented invention "provides a

system and method for executing binary translated code in a manner that exploits the

explicit parallelism of a host computer system and that supports precise exception

maintenance." *Id.* at 3:56–59.

One challenge with binary translation is that software programs may include

errors that "mak[e] it difficult to accurately execute the foreign code in the host

environment." *Id.* at 2:12–13. An exception is one type of error. "An exception is a

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problem or a change in conditions that causes the processor or computer system to stop or suspend execution of the program and respond to the problem in a separate routine, which is often referred to as an exception handler." *Id.* at 2:22–26. An exception occurs when a program that is running encounters a condition "that violates a mathematical or logical rule or attempts to access invalid memory or data." *Id.* at 2:16–18. For example, an exception arises when the denominator is zero and a divide instruction is executed. *Id.* at 2:37–39.

The patent discloses a mechanism by which exceptions are handled more efficiently. As the specification explains, the "exception handler in the host architecture maintains documentation showing which registers must be used to restore the original foreign register content." *Id.* at 4:67–5:3. "Thus, when an operation generates an exception, the exception handler quickly determines the state of the computer system prior to detection of the exception. Using this information, the exception handler determines an appropriate solution to the problem." *Id.* at 5:10–15.

Examples from the specification illustrate how this process works. A host central processing unit (CPU) "temporarily preserves register data and system status information before executing instructions that will calculate a variable." *Id.* at 10:9–12. With that information, "the exception handler can determine the state of the computer system immediately prior to the detection of the exception because the present invention preserves the data and conditions that gave rise to the exception." *Id.* at 10:20–23. Put differently, when an exception occurs, the exception handler uses the documentation created during the optimizing binary translation "to recreate the state of the host computer system at the most recently executed recovery point." *Id.* at 15:22–

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27. The availability of prior system state information minimizes the number of side effects that must be investigated. *Id.* at 5:16–19.

At issue in this case are two of the '750 patent's eighteen claims. Claim 1 describes the invention's binary translation system, comprising the following six elements:

> a non-optimizing foreign code execution module configured to maintain dedicated foreign state for each foreign binary operation executed allowing for the exceptions arisen to be handled precisely; and
> an optimizing binary translator configured to translate foreign binary operations into optimized sequences of host operations in such a way as to improve the speed of execution of the sequences; and
> a host CPU configured to execute the host operations; and
> a documentation generator configured to generate a set of documentations for optimized sequences of host operations, wherein each documentation describes operations required to calculate a corresponding foreign state for an appointed point;
> a documentation tracker configured to record host operation addresses at appointed points of the host operation sequences being executed, wherein, for each host operation address, operations required to calculate a corresponding foreign state for the host operation address are added to documentation; and
> a recovery mechanism configured to select a documentation in the set of documentations using a host operation address corresponding to the selected documentation, wherein the recovery mechanism is configured to perform the operations saved in the documentation to calculate the corresponding foreign state for the host operation address and to continue foreign codes execution in case of the exception arisen during the execution of the corresponding optimized host codes.

Id. at 16:5–34. Claim 15 describes a "method of recomputing a dedicated foreign state in a binary translation system from documentation generated by an optimizing translator in a case of an exception arising during execution of optimized binary translated code translated from a foreign code," comprising three elements:

> designating a set of recovery points in the optimized binary translated code during optimized translation of the foreign code, wherein each recovery point represents a foreign state;

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generating a set of documentations during the optimized translation of the foreign code, wherein each documentation in the set of documentations corresponds to a recovery point in the optimized binary translated code and describes operations required to calculate a corresponding foreign state for the recovery point; and

using one of the documentations in the set of documentations corresponding to executed optimized binary translated code when an exception arises during its execution to recover a foreign state corresponding to a recovery point for the exception, wherein the foreign state is recovered by executing the operations for the one of the documentations.

Id. at 17:20–18:7.

Cascades accuses Samsung of infringing claims 1 and 15 of the '750 patent and accuses HTC of infringing claim 15. The accused devices are Android-based smartphones manufactured by Samsung and HTC that use Dalvik's Just-In-Time (JIT) Compiler, a component of the Dalvik Virtual Machine (VM) in the Android operating system. The Dalvik JIT Compiler translates foreign code to host code for execution. For example, if a programmer writes an application in Java source code (the foreign code), the Dalvik JIT Compiler translates the instruction from Java to the host code, which allows the program to run on the Dalvik VM (the host). The Dalvik JIT Compiler includes routines for handling precise exceptions when translating foreign code to host code for execution. According to Cascades, the Dalvik JIT Compiler, like the '750 patent, restores a foreign register as part of its precision exception handling routine.

Discussion

A party is entitled to summary judgment if it shows that there is no genuine issue of material fact and it is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). On a motion for summary judgment, the Court views the record in a light most favorable to the non-moving party and draws all reasonable inferences in that party's favor.

Anderson, 477 U.S. at 255. Summary judgment is inappropriate "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Id.* at 248. "Summary judgment of noninfringement may only be granted if, after viewing the alleged facts in the light most favorable to the nonmovant and drawing all justifiable inferences in the nonmovant's favor, there is no genuine issue whether the accused device is encompassed by the patent claims." *Novartis Corp. v. Ben Venue Labs., Inc.*, 271 F.3d 1043, 1046 (Fed. Cir. 2001).

A.   Disclaimer of the rollback function

Defendants argue that HTC and Samsung's products are incapable of infringing claims 1 and 15. Defendants rely on the January 2, 2014 claim construction order, in which the Court ruled that the patentees "unmistakably disclaim[ed] the use of a rollback function" during prosecution. *Cascades Computer Innovation, LLC v. Dell Inc.*, Nos. 11 C 4574, 11 C 7264, 11 C 6235, 11 C 7223 & 11 C 7249, 2014 WL 26288, *13 (N.D. Ill. Jan. 2, 2014). HTC and Samsung contend that infringement is not possible because the Dalvik JIT Compiler operates by rolling back the target registers to recover an earlier state.

Cascades, in response, argues that the patentees only disclaimed the rollback function as operated under the Kelly prior art patent. The key distinction, Cascades contends, is that Kelly handles exceptions by restoring the host's working registers, by copying them into the most recently committed state of the foreign state. In other words, the *host* registers are restored to their previous state. The '750 patent, on the other hand, handles exceptions by restoring the *foreign* state registers, by executing documentation.

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For the reasons that follow, the Court clarifies that the patentees only disclaimed use of the rollback functionality as disclosed in Kelly. *See Network Commerce, Inc. v. Microsoft Corp.*, 422 F.3d 1353, 1358 n.4 (Fed. Cir. 2005) (approving a district court's clarification of its claim construction order on summary judgment).

To constitute a disavowal of claim scope, the disclaimer must "be both so clear as to show reasonable clarity and deliberateness, and so unmistakable as to be unambiguous evidence of disclaimer." *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325 (Fed. Cir. 2003) (internal citation omitted). Although the patentees clearly sought to differentiate their invention from Kelly, it is not clear or unambiguous that they disclaimed all operations that restore an earlier state. This would constitute a much broader disclaimer than the inventors likely intended.

In order to distinguish their invention from Kelly, the patentees amended their claims to include "operations required to calculate a corresponding foreign state." The patentees' submissions to the patent examiner inform the Court's conclusion that they only disclaimed the Kelly rollback function. In those submissions, the patentees distinguished the mechanism by which the inventions handle exceptions. When an exception occurs in the Kelly invention, "<u>the original state in the target registers</u> at the last update (or commitment) may be recalled to the working registers." Defs.' Claim Const. Br., Ex. 2 at 75. The '750 patent, on the other hand, "discloses adding <u>operations required to calculate</u> a corresponding foreign state for the host operation address are added [sic] to documentation." *Id.* The '750 patent restores a foreign state, whereas the Kelly patent does not recover a foreign state. *Id.* ("[In Kelly] operations are not executed to recover a foreign state.").

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In sum, the patentees did not disclaim every form of rollback. The patentees disclaimed the type of rollback disclosed in the Kelly patent, which the Court construes to mean rolling back host registers to restore the host state. The Court's construction applies to claims 1 and 15. *See Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001) ("[A] claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent.").

The Court next turns to how the accused devices operate in this regard. In its final infringement contentions, Cascades stated that the accused devices "rollback the VM registers to a recovery point." Defs.' Brown Decl., Ex. 1 at 91. Cascades' expert, Alan Purdy, also acknowledged that the accused devises perform rollback. Defs.' Shih Decl., Ex. 1 at 275:23–276:13. And defendants' experts confirm that the Dalvik JIT Compiler rolls back to recover an earlier state. Defs.' Buzbee Decl. ¶¶ 5–6; Defs.' Goldberg Decl., Ex. A ¶¶ 113–14; Defs.' Medvidovic Decl., Ex. A ¶ 142. Nonetheless, because patentees only disclaimed rolling back host registers to their previous state, the description of defendants' mechanism as "rollback" does not entitle them to summary judgment of noninfringement.

Cascades has pointed to evidence that Samsung's devices produce documentation that describes "operations required to calculate a corresponding foreign state" and include a "recovery mechanism [ ] configured . . . to calculate the corresponding foreign state" as disclosed by claim 1. According to Mr. Purdy's expert report, in Samsung's devices, the "genCheckCommon()" instruction creates documentation, which then adds to the documentation the program counter (PC) reconstruction code. At runtime, the PC reconstruction code "performs operations to

calculate the corresponding foreign state (the Dalvik PC) for the appointed point in the generated host code." Pl.'s Niro Decl., Ex. A ¶¶ 137–45.

Cascades has also pointed to evidence that HTC and Samsung's devices generate documentation that "describes operations required to calculate a corresponding foreign state" as disclosed by claim 15 of the patent. That documentation is comprised of host instructions "that calculate the corresponding foreign state for the recovery point. The host instructions recover Dalvik VM's foreign state by calculating the VM's foreign state for the recovery point, by restoring the Dalvik VM's PC." *Id.* ¶¶ 158–61. This evidence is sufficient to create a genuine issue of material fact as to whether the accused devices perform a rollback to recover a foreign state. Accordingly, the Court denies summary judgment of noninfringement as to whether the accused devices perform "operations required to calculate a corresponding foreign state."

B. "Calculate"

Defendants also argue that Samsung and HTC's devices are incapable of infringing because the documentation generated by the Dalvik JIT Compiler does not describe operations that "calculate" any values as disclosed by claims 1 and 15. Pl.'s Niro Decl., Ex. T at 16:16–18; 17:31–34. Cascades identifies the "documentation" as the "loadConstant" instruction, but defendants argue that the instruction does not "calculate" anything because it simply copies a value from one location and moves it to another. Defendants contend that "calculate" in claims 1 and 15 should be construed to require more than copying and moving a value.

Cascades does not challenge defendants' description of the accused technology. Instead, it argues that "calculate" means "everything a computer does." Pl.'s Mem. in Opp. to Mot. for Summ. J. at 13. According to Cascades, the loadConstant instruction restores the foreign state by putting the previously stored Dalvik VM's program counter value back into the host register, which is a type of calculation.

The parties offer different definitions of the term "calculate" based on conflicting dictionary definitions and expert testimony. But in construing a patent's claim terms, the Court must "first look to, and primarily rely on, the intrinsic evidence, including the claims themselves, the specification, and the prosecution history of the patent, which is usually dispositive." *Sunovion Pharms., Inc. v. Teva Pharms. USA, Inc.*, 731 F.3d 1271, 1276 (Fed. Cir. 2013). *See also Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1578 (Fed. Cir. 1995) ("[T]he definition in the patent documents controls the claim interpretation. . . . Thus, we may not consider Southwall's opinion expert testimony as we interpret claim 14 as a matter of law.").

The term "calculate" in claims 1 and 15 refers to the mechanism by which the system determines a "corresponding foreign state" when an exception is encountered. Although "calculate" is not defined in the claims or specification, the specification offers guidance as to how the foreign state is determined. Specifically, the specification states the following:

> Performance improvements achieved by [the] optimizing binary translator processor [ ] may be significantly and negatively impacted when an exception is detected and variables must be calculated. The present invention . . . sav[es] the contents of registers in temporary locations before executing instructions that could generate an exception. An exception handler uses the information in the temporary location upon detection of the exception. The exception handler recovers the contents of the registers, resets the status flags to a known state and recovers from

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the error condition in a manner that minimize[s] the side effects that must be resolved.

Pl.'s Niro Decl., Ex. T at 7:56–67. In other words, the invention does not individually calculate variables each time an exception is detected; rather, register contents are saved for later use when an exception occurs. The exception handler then determines the foreign state, or the "known state" to which status flags are reset, by "recover[ing] the contents of the registers" that were previously saved. "[T]he exception handler can determine the state of the computer system immediately prior to the detection of the exception because the present invention preserves the data and conditions that gave rise to the exception." *Id.* at 10:20–23.

Operation of the exception handler is also described in the specification as follows:

> [The host exception handler] takes wide instruction address from the [Recovery Point] register and extracts correspondent documentation for the Recovery Point being addressed by the value of instruction pointer in the [Recovery Point] register. On the base of this documentation the exception handler determines a foreign operation which the process of recovery [ ] should be started from.

Id. at 14:26–32.

The language of claim 1 and patentees' representations to the Patent and Trademark Office also reveal that the invention's exception handler operates by accessing stored register data and system information to determine the foreign state. Claim 1 discloses that "the recovery mechanism is configured to perform the operations saved in the documentation to calculate the corresponding foreign state." Pl.'s Niro Decl., Ex. T at 16:29–31. During the prosecution of the patent, the patentees stated

that a key distinction between the Kelly patent and the '750 patent is that the latter "store[s] a set of documentations each including operations for host operation addresses, and then [ ] determine[s] a documentation where operations are executed to recover foreign state." Defs.' Claim Const. Br., Ex. 2 at 75.

The language used to describe how the system identifies the foreign recovery point includes the following: "the exception handler *determines* a foreign operation"; it "can *determine* the state" immediately before the exception; it "*determine[s]* a documentation . . . to recover foreign state"; and it "*recovers*" and "*resets*" the status flags to a known state. It is clear from these descriptions that the term "calculate" refers to the process by which the temporarily stored register contents are used to determine a corresponding foreign state. The Court therefore concludes that the term "calculate," as used in the claims, simply means "determine."

Cascades has offered sufficient evidence to raise a genuine issue of material fact as to whether the Dalvik JIT Compiler "calculate[s] a corresponding foreign state" or includes a mechanism configured to "calculate a corresponding foreign state" as disclosed by claims 1 and 15 of the patent. The parties agree that when the loadConstant instruction is invoked, it "take[s] the value it receives in register 0 and puts that value in r4." Pl.'s Resp. to Defs.' LR 56.1(a)(3) Stmt. ¶¶ 51–52; Defs.' Shih Decl, Ex. 1 at 962:8–963:5. During Mr. Purdy's deposition, in which he discussed the requirements for showing infringement of the '750 patent, he testified that when the foreign program counter is restored, the JIT Compiler "has calculated the displacement and the base address and taken that sum and cached that, stored that in only one place, and that's in the [ ] load immediate instruction that is generated." Pl.'s Niro Decl.,

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Ex. G at 576:8–19. Cascades has pointed to evidence that the documentation (the LoadConstant instruction) stores the operations required to calculate the foreign state, and that this information is later used to determine the recovery point. Applying the Court's construction, a genuine issue of material fact exists as to whether the accused devices "calculate" a foreign state.

C.   Direct infringement of claim 15

HTC and Samsung argue that they did not directly infringe claim 15, because Cascades cannot show that all steps of the patented method were performed in the United States. To prove direct infringement of a method claim, a person must have practiced all steps of the claimed method in the United States. *NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir. 2005); 35 U.S.C. § 271(a).

Both HTC and Samsung are foreign companies with offices in the United States. To support its claim that defendants infringed claim 15 in the United States, Cascades cites Internet postings for employment opportunities in this country, which purport to show that defendants' smartphones are tested in the United States. Although these documents indicate that Samsung and HTC recruit software engineers to develop and test Android software for defendants' mobile devices in the United States, they only refer to smartphone testing generally. The postings do not support a reasonable inference that defendants tested or operated the Dalvik JIT Compiler, as opposed to other aspects of their phones, in this country. Cascades asks the Court to infer that defendants must have tested the Dalvik JIT Compiler because some product testing is done in the United States. But it has not offered enough evidence to reasonably permit that inference.

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Cascades also offers evidence of purported product demonstrations in the United States. Cascades cites the LinkedIn profile of Samsung's Chief Product Officer, who works in Dallas. Again, this evidence does not support the inference that all three elements of the method were performed in this country. Cascades refers to testimony that HTC held a presentation meeting in New York. But that witness admitted that she did not know whether HTC's smartphones were demonstrated during the meeting. Further, the meeting took place in 2014, a period of time that is no longer at issue based on the Court's September 2014 summary judgment ruling. Finally, Cascades points to a video presentation that was streamed on the Internet in which Samsung representatives demonstrated a smartphone. But according to the evidence provided to the Court, the presentation took place in Hong Kong. This evidence also fails to support the inference that the defendants performed the claimed method in the United States.

Because Cascades has not offered sufficient evidence to support an inference that defendants performed the claimed method in the United States, the Court grants defendants' motion for summary judgment of noninfringement as to direct infringement of claim 15.

D.   **Induced infringement of claim 15**

Cascades alleges that HTC and Samsung induced infringement of claim 15. Under 35 U.S.C. § 271(b), "[w]hoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b). "In order to succeed on a claim of inducement, the patentee must show, first that there has been direct infringement, and second, that the alleged infringer knowingly induced infringement and possessed specific intent to encourage another's infringement." *MEMC Elec. Materials, Inc. v.*

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Mitsubishi Materials Silicon Corp., 420 F.3d 1369, 1378 (Fed. Cir. 2005) (internal

quotation marks omitted). Defendants argue that Cascades fails to raise a genuine

issue of material fact as to both of these requirements. They contend that Cascades

has failed to identify an instance of direct infringement by a third party and has offered

no evidence of defendants' specific intent to encourage infringement. Defendants also

ask the Court to grant summary judgment of no indirect infringement prior to the filing of

the original complaints in this case, even if the Court denies summary judgment as to

indirect infringement.

1.   Notice

Defendants contend that because they did not have notice of the '750 patent

prior to the filing of the original complaints, they cannot be held liable for induced

infringement before that date. Cascades argues that Samsung was notified as early as

April 7, 2011. Cascades concedes that HTC was not notified of infringement prior to

September 7, 2011, and HTC does not challenge this contention, so the Court

concludes that HTC was on notice as of that date.

To be liable for induced infringement, a defendant must have knowledge that the

induced acts constitute patent infringement and must know "of the existence of the

patent that is infringed." *Global-Tech Appliances, Inc. v. SEB S.A.*, 131 S. Ct. 2060,

2068 (2011). To show notice, Cascades offers an April 7, 2011 letter that was sent to

the Executive Vice President of Samsung's IP Center. In that letter, Cascades notified

Samsung of some of its patent licenses but did not discuss the '750 patent in detail.

Rather, Cascades stated that "[w]e want to draw your attention to just five of the 39

patents in the Cascade portfolio." Pl.'s Niro Decl., Ex. O at 4. But the '750 patent was

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not one of the five patents discussed in the letter; it was merely listed in an appendix, without explanation. Pl.'s Niro Decl., Ex. O at 10. This communication is insufficient to create a triable issue as to Samsung's knowledge at that time.

Cascades offers an e-mail dated June 15, 2011, which specifically describes infringement contentions concerning the '750 patent. That email reads, "Attached is a detailed claim chart applying claim 15 of U.S. Patent No. 7,065,750" to Samsung's products. Pl.'s Niro Decl., Ex. Q. This communication was sufficient to put Samsung on notice of the '750 patent. Accordingly, Samsung can be liable for induced infringement from September 7, 2011 through January 29, 2014. HTC can be liable for induced infringement from July 6, 2011 through January 29, 2014. The Court grants summary judgment of no indirect infringement before those dates.

2. Direct infringement

Defendants argue that there is no evidence of direct infringement. "Liability for either active inducement of infringement or contributory infringement is dependent upon the existence of direct infringement." *DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1303 (Fed. Cir. 2006) (quoting *Joy Techs., Inc. v. Flakt, Inc.*, 6 F.3d 770, 774 (Fed. Cir. 1993)). To survive summary judgment, Cascades must point to evidence sufficient to raise a genuine issue of material fact that users infringe claim 15 when they use the accused devises.

"Direct infringement can be proven by circumstantial evidence." *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1364 (Fed. Cir. 2012) (internal quotation marks omitted). Sale of an allegedly infringing product is sufficient to create a triable issue of fact if the instructions teach an infringing use or if the device can only be used in an infringing

manner. *See id.* at 1365 ("[W]here an alleged infringer designs a product for use in an

infringing way and instructs users to use the product in an infringing way, there is

sufficient evidence for a jury to find direct infringement."). In the cases cited by

defendants where the Federal Circuit affirmed findings of no inducement, the accused

devices could be used in an infringing or a noninfringing manner and customers were

not instructed on infringing use. *See ACCO Brands, Inc. v. ABA Locks Mfrs. Co.*, 501

F.3d 1307, 1313 (Fed. Cir. 2007) ("Here, the parties do not dispute that the accused

device can be operated in either of two modes . . . . Because the accused device can

be used at any given time in a noninfringing manner, the accused device does not

necessarily infringe."); *Mirror Worlds, LLC v. Apple Inc.*, 692 F.3d 1351, 1360–61 (Fed.

Cir. 2012) ("The manuals teach customers each step of the claimed method only in

isolation and thus do not suffice . . . for showing inducement of infringement.").

    In this case, it is undisputed that the Dalvik JIT Compiler is operational by default

in defendants' devices. Defs.' Goldberg Decl., Ex. A at 5 (referring to the "Default Dalvik

functionality in the accused HTC products"). Although plaintiff's expert states that "the

user or manufacturer can turn off the Dalvik JIT Compiler" in the accused devices, Pl.'s

Niro Decl., Ex. A ¶ 13, defendants previously argued, and this Court agreed, that the

accused devices have no reasonable noninfringing uses. *Cascades Computer*

Innovation, 2014 WL 4553226, at *5 (concluding that the patent exhaustion doctrine

applies because the Android operating system has no reasonable noninfringing uses

and includes all inventive aspects of the claimed method). In fact, defendants

encourage use of the Dalvik JIT Compiler. In an exhibit that was previously submitted

to the Court, one of Cascades' experts reports that the Android website contains the

following warning: "**Important:** Dalvik must remain the default runtime or you risk

breaking your Android implementations and third-party applications." Defs.' Reply in

Supp. of Mot. for Summ. J. on Exhaustion, Ex. 21 ¶ 141. The same expert reports that

"Android suggests that Dalvik remains as the default runtime against the risk of

malfunctioning regarding Android implementations and third-party applications." *Id.*

¶ 52 (internal quotation marks omitted). Even if a user can turn off the Dalvik JIT

Compiler, a reasonable jury could infer that most consumers do not do so based on

these instructions. Because the Dalvik JIT Compiler is installed and enabled on

defendants' devices, a jury could reasonably infer that at least some of defendants'

customers have used the technology.

It also appears that the noninfringing use has been disabled in some of

defendants' devices. Mr. Purdy states in his report that Samsung has modified some of

its devices to remove the user's ability to switch from Dalvik to a noninfringing use. Pl.'s

Niro Decl., Ex. A ¶ 18. Similarly, HTC sells products that do not allow users to switch

from Dalvik to a noninfringing use. Pl.'s Niro Decl., Ex. N at 46:19–24. This evidence

supports the inference that at least one person has used the accused technology.

A jury could also reasonably infer that exceptions occur during operation of the

Dalvik JIT Compiler. Mr. Purdy encountered exceptions when he tested the Android

source code. Further, he identified "655 *.java files that contain Java's 'try . . . catch'

structures—a mechanism for fielding raised exceptions, and a total of at least 2300 'try

. . . catch' structures." Pl.'s Niro Decl., Ex. A ¶ 15. The fact that Java-based

applications handle exceptions when operated and the fact that the Dalvik JIT compiler

is enabled by default support the inference that exceptions occur when customers use

Samsung and HTC smartphones. This is sufficient to raise a triable issue as to whether customers perform the claimed method.

In *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301 (Fed. Cir. 2009), the Federal Circuit considered post-trial motions challenging a jury's finding of induced infringement. In that case, the plaintiff presented no direct evidence that any users, other than plaintiff's expert, performed the claimed method. *Id.* at 1318. The plaintiff presented circumstantial evidence, including "evidence relating to the extensive sales of Microsoft products and the dissemination of instruction manuals for the Microsoft products." *Id.* Although the court found the evidence to be weak, it ruled that the jury was not "unreasonable in finding that Microsoft possessed the requisite intent to induce" and "could have reasonably concluded that . . . more likely than not one person somewhere in the United States had performed the claimed method." *Id.* at 1323. Here, the Android website instructs customers not to disable the Dalvik JIT Compiler, which runs whenever a foreign application is translated on a smartphone. As in *Lucent*, a reasonable jury might infer that at least one user performed the claimed method given the evidence of wide distribution of defendants' products and the default operation of the Dalvik JIT Compiler. A genuine issue of fact therefore exists as to whether defendants' customers directly infringed the '750 patent.

3. Intent

To prove inducement, Cascades must also show that the defendants knowingly induced infringement and possessed specific intent to encourage another's

infringement. *DSU Med. Corp.*, 471 F.3d at 1306 (en banc).[1] "The plaintiff has the

burden of showing that the alleged infringer's actions induced infringing acts *and* that he

knew or should have known his actions would induce actual infringements." *Id.* (internal

quotation marks omitted).

Defendants argue that Cascades has not offered evidence of specific intent to

induce infringement. "Intent can be shown by circumstantial evidence, but the mere

knowledge of possible infringement will not suffice." *Vita-Mix Corp. v. Basic Holding,*

Inc., 581 F.3d 1317, 1328 (Fed. Cir. 2009). As the Court concluded, Samsung and HTC

knew about the patent beginning in June and July 2011, respectively. As to whether

defendants knew their actions would induce infringement, it is reasonable to infer that

HTC and Samsung include the Dalvik JIT Compiler in their devices intending that it be

used to translate foreign code and handle exceptions. Defendants offer Java-based

smartphone applications, some of which they develop themselves. This fact further

supports the inference that HTC and Samsung intend customers will perform the

claimed method when they run applications.

In *Ricoh Co., Ltd. v. Quanta Computer Inc.*, 550 F.3d 1325 (Fed. Cir. 2008), the

Federal Circuit, reversing a district court's decision to grant summary judgment of

noninfringement, discussed the specific intent requirement for inducement. The court

stated that "the distribution of a product can itself give rise to liability where evidence

shows that the distributor intended and encouraged the product to be used to infringe."

Id. at 1343 (internal quotation marks and citations omitted). Further, "[t]o the extent that

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[1] Only Section III.B of the Federal Circuit's opinion, in which the court discussed the intent requirement for inducement, was considered by the court sitting en banc. *See DSU Med. Corp.*, 471 F.3d at 1304–06 (en banc).

the components [in the accused device] do not in fact have a purpose other than the performance of infringing functions under normal use conditions, such evidence would create a material issue of fact regarding [the defendant's] intent that its drives be used to infringe." *Id.* In this case, it is hard to imagine why the defendants would include the Dalvik JIT Compiler in their smartphones if not for the purpose of translating foreign source code and handling exceptions. Because it would be reasonable for a jury to infer that the defendants intended this technology to be used, Cascades has raised a genuine issue of material fact as to whether HTC and Samsung possessed specific intent to encourage infringement.

E.   Willful infringement

Samsung requests summary judgment of no willful infringement.[2] 35 U.S.C. § 284 allows a court to enhance a prevailing plaintiff's damage award "up to three times the amount found or assessed." 35 U.S.C. § 284. The Federal Circuit has held "that an award of enhanced damages requires a showing of willful infringement." *In re Seagate Tech., LLC*, 497 F.3d 1360, 1368 (Fed. Cir. 2007) (en banc). To establish willful infringement, a plaintiff must prove two elements by clear and convincing evidence. First, the plaintiff must show "that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent." *Id.* at 1371. If objective recklessness is found, the plaintiff "must also demonstrate that this objectively-defined risk (determined by the record developed in the infringement proceeding) was either known or so obvious that it should have been known to the accused infringer." *Id.*

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[2] Cascades has not alleged that HTC willfully infringed the patent.

The Court recognizes that "the ultimate legal question of whether a reasonable person would have considered there to be a high likelihood of infringement of a valid patent should always be decided as a matter of law by the judge." *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 682 F.3d 1003, 1008 (Fed. Cir. 2012). Nonetheless, factual determinations will inform the Court's objective reasonableness analysis in this case. *Id.* at 1007 ("When the objective prong turns on fact questions . . . the judge remains the final arbiter of whether the defense was reasonable, even when the underlying fact question is sent to a jury."). The Court will defer deciding whether Samsung's infringement defenses are reasonable as a matter of law until after the facts are presented at trial. *See HTC Corp. v. Tech. Props. Ltd.*, No. 5:08-CV-00882-PSG, 2013 WL 5225043, *8 (N.D. Cal. Sept. 17, 2013) (denying summary judgment on the issue of willfulness because "where factfinding is necessary, trial courts generally reserve willfulness until after a full presentation of the evidence on the record to the jury").

Conclusion

For the foregoing reasons, the Court grants Samsung and HTC's motion for summary judgment of noninfringement in part and denies the motion in part [Case No. 11 C 4574, dkt. nos. 197 & 198; Case No. 11 C 6235. dkt. no. 152]. The cases are set for a status hearing on January 14, 2015 at 9:30 a.m. for the purpose of setting a trial date and addressing whether there should be separate trials for each case.

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MATTHEW F. KENNELLY
United States District Judge

Date: January 6, 2015
(corrected February 18, 2015)